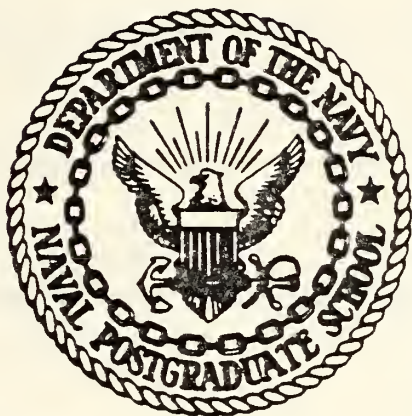


NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

G-S-E MANAGEMENT AND FUNDING

by

R. L. Mosher

June 1977

Thesis Advisor:

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G-S-E Management and Funding

by

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ABSTRACT

This thesis addresses the subject of the material and fiscal management of Ground Support Equipment (GSE). A broad overview is presented of the GSE program's evolution, current funding and management policies employed at NAVAIR and TYCOM levels are examined and GSE costs as they relate to the following Appropriations Act Titles are reviewed: II, Operation and Maintenance; III, Procurement; and IV, Research, Development, Test and Evaluation. A discussion of several of the more germane problems associated with the operational management of Ground Support Equipment at these levels as well as those corrective measures which have and/or should be implemented follows. In a concluding chapter, an assessment is made of GSE management at all levels which reemphasizes those areas most in need of corrective action; several suggestions are offered for improving the system, particularly at the user (local) level where they will have the greatest impact.

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EVENTS DON'T JUST HAPPEN! They are caused and can be regulated. All events from the intricate movement of Naval forces and complex production techniques to the execution of relatively simple tasks emanate from the employment of four basic elements: MEN - MONEY - MATERIAL - TIME. How, when, where and in what combination these elements are used will, in the final analysis, determine the outcome of any event. Naval GSE Management comes down to ascertaining what recipe should be used to obtain the desired results with respect to operational goals and objectives, and then CONTROLLING THE MIXTURE!

I. GROUND SUPPORT EQUIPMENT OVERVIEW

With the development of ever increasingly complex weapons systems requiring huge outlays of money, good management of the Navy's Ground Support Equipment (GSE) for these systems becomes increasingly important. The potential for problems for the Navy GSE manager is immense. With fewer dollars available and more and more programs competing for them, the GSE manager is faced with a two-fold problem: maximizing available assets and acquiring equipment sufficient to replace that which is worn out or required by new systems.

Ground Support Equipment resources fleetwide are valued in excess of two billion dollars with approximately \$300 million worth of assets being added annually. This inventory consists of 17,000 major line items with an average of 100 items of GSE per line item. Over 9,000 of these major line items require regularly scheduled depot rework with Naval Air Rework Facilities (NARFs) accomplishing about 96% of all rework (by volume) and commercial activities accounting for the remainder. This aspect of GSE management will be addressed in depth later.

A typical aircraft carrier, if indeed one can be said to exist, has an inventory of GSE valued at roughly thirty-eight million dollars without the Versatile Avionics System Test (VAST) equipment aboard, and approximately forty-five million dollars if VAST is included. These figures vary

depending upon the site and maintenance responsibility of the concerned activity, i.e., organizational (squadron), intermediate (AIMD/IMA ashore or afloat) and depot level.

The scope/magnitude of the GSE program, with all its ramifications, is substantial. Its acquisition and management are large, necessary and expensive operations where the potential for significant waste and mismanagement exists; the Navy can ill afford such practices given today's budgetary constraints. It was precisely for such reasons that centralized GSE management was established in 1966 under the Naval Air Systems Command (NAVAIRSYSCOM).

The Director, GSE Division, (AIR-534) was designated as the Ground Support Equipment Program Manager. A GSE Department of the Naval Air Engineering Center (NAVAIRENGCEN) was originated in June 1967 to provide centralized support. To ensure that comprehensive service testing was conducted on all GSE prior to fleet introduction, the GSE Test and Evaluation Branch at the Naval Air Test Center (NAVAIRTESTCEN) was established in 1968. The need to consolidate previously fragmented GSE logistics management support was satisfied in March 1970 by the creation of the GSE Logistics Division (AIR-417). The stated purpose of centralized GSE management was to implement and control a program for approximately 77,000 line items and to coordinate and interface among the working partners (AIR-534, AIR-417, NAVAIRENGCEN, NAVAIRTESTCEN and ASO).

As previously noted, GSE used in conjunction with aircraft weapons systems is a multi-million dollar yearly undertaking. If one were to examine the Navy's portion of the Federal Budget, for example, it would become readily apparent that about 33% of it is devoted to procurement. And within that amount, a sizeable sum goes for the purchase of Common Ground Support Equipment/Peculiar Ground Support Equipment (CGSE/PGSE) hereafter to be used synonymously with Individual Material Readiness List (IMRL) equipment. In view of its cost alone, it is not surprising that careful management of these assets is an absolute requisite.

It is the specific intent of this paper to address the following areas as they relate to Ground Support Equipment management and funding:

1. What is GSE?
2. How is IMRL equipment related to GSE/CGSE/PGSE?
3. How is GSE budgeted and funded?
4. How much does the GSE Program cost?
5. How is GSE acquired?
6. How is GSE controlled?
7. What GSE management problems currently exist?
8. How can GSE management be improved?

II. GSE/IMRL RELATIONSHIPS

In very general terms, an Individual Material Readiness List (IMRL) is simply a listing of those pieces of GSE, either "common" or "peculiar," required to support the aircraft mix of a squadron, air station, air facility, carrier or other ship. IMRLs are tailored to individual commands and identify those specific pieces of CGSE/PGSE each command is authorized to hold.

But what is meant by the terms "GSE," "CGSE," and "PGSE" in more precise language? As Figure II-1 depicts, Ground Support Equipment runs the gamut from special hand tools to tie down chains to tow bars to tow tractors to a myriad of sophisticated avionics equipments. Since support functions and requirements differ from organization to organization, IMRLs also vary, at least in so far as length is concerned, from relatively short listings for small squadrons to those for afloat and ashore Intermediate Maintenance Activities (IMAs) which frequently run to some 2800 line items.

For purposes of classification, two broad categories of IMRL equipment (GSE) exist: CGSE/PGSE, common and peculiar. As the name implies, common ground support equipment is that GSE which is used with more than one aircraft type or system; similarly, peculiar support equipment has specific application to only one such weapons system. Because an item

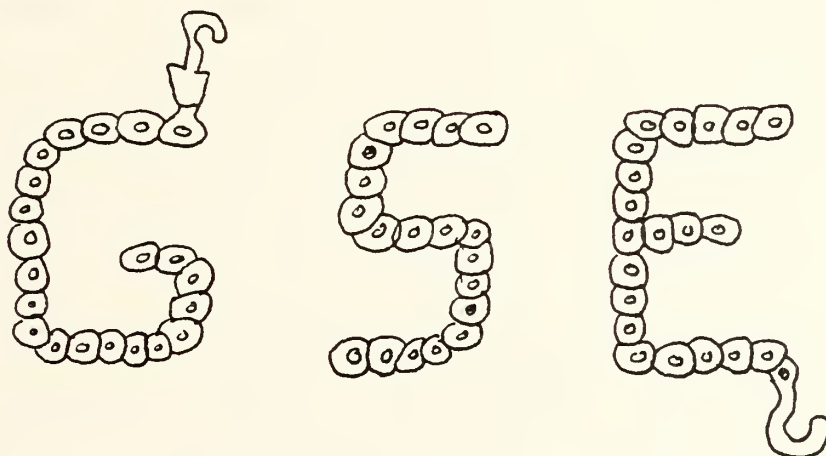
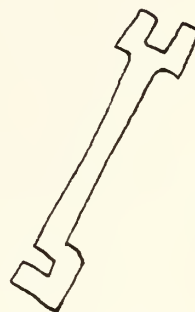
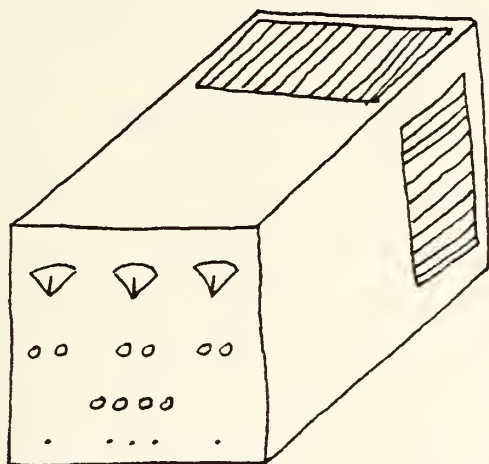
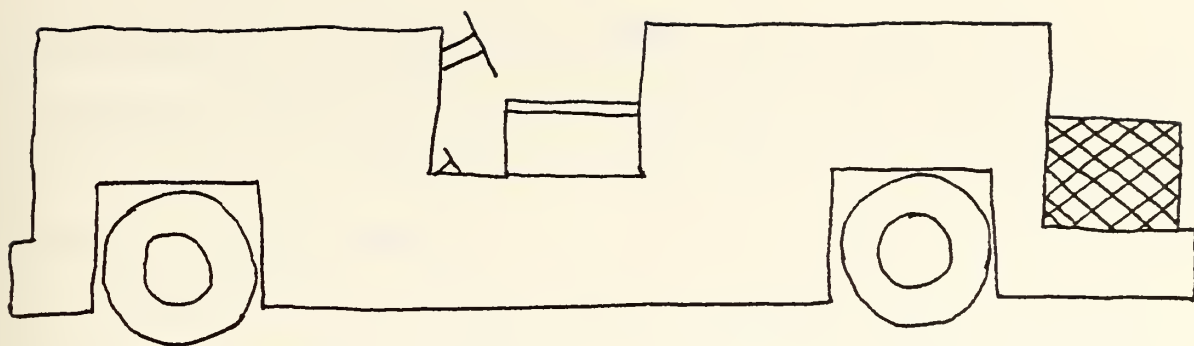


FIGURE II-1
REPRESENTATIVE GROUND SUPPORT EQUIPMENT

of equipment is classified as PGSE does not mean that it is necessarily peculiar to a given aircraft, but rather that it is peculiar to a particular system which may be employed on several aircraft types.

Broadly defined, GSE is that equipment which provides maintenance support directly to an aircraft weapons system or an uninstalled aircraft component undergoing test or repair. Specifically excluded are items not included in the Aircraft Maintenance Material Readiness List (AMMRL) program. Succinctly stated, GSE is positioned at organizational and intermediate maintenance activities for the purpose of supporting activity mission requirements. The quantity and type of GSE is determined by the AMMRL program with the IMRL serving as the main fleet inventory and allowance document.

The IMRL is printed and distributed by the Naval Air System Command Representatives (NASCRs) as directed by the five Aircraft Controlling Custodians (ACCs): Commander, Naval Air Force Atlantic (COMNAVAIRLANT/CNAL); Commander, Naval Air Force Pacific (COMNAVAIRPAC/CNAP); Chief of Naval Air Training (CNATRA); Chief of Naval Reserve (CNAVRES); and Naval Air Systems Command (NAVAIRSYSCOM). Application Data for Material Readiness List (ADMRL) information stored in computers is used to develop IMRLs and manifests itself in the type and quantity of GSE authorized for individual maintenance activities.

An Individual Material Readiness List is divided into five sections: I - Supplement, II - Part Number,

III - Nomenclature, IV - National/Federal Stock Number and V - IMRL Number. Briefly, the supplement is a listing of ACC authorized changes to the organization's IMRL incorporated in the current edition. The other sections are self-explanatory with the possible exception of number V, which lists all items by a discrete number peculiar to only one command.

IMRL equipment is further divided into repairable and consumable categories. Report Code "R" is assigned to all repairable GSE; Report Code "C" is assigned to all consumable expense materials for which a standard depot level rework/repair program has not been established but may include items which are repairable at the organizational or intermediate levels.

One other point of clarification should be made regarding the IMRL and its application. Depot level maintenance activities (NARFs) hold GSE which is managed under the Planned Equipment Management Application (PEMA) program vice IMRL program although they are funded jointly. It has been suggested that this program could and should be made more responsive to the AMMRL program. This could be accomplished by ensuring that the following steps for validating the input data are performed: (1) complete a thorough, accurate physical inventory; (2) initiate accountability records; (3) establish allowances similar to those for IMRL activities; and (4) establish and maintain positive requisition control. Before any meaningful progress can be realized in this area,

though, a reliable management information system must be implemented. With some \$250 million worth of assets presently requiring control at the several NARFs, it is surprising that a viable program has not heretofore been devised. NAVAIRSYS-COM agrees with most of the Naval Area Audit Service suggestions and has begun to implement them. [Re recommendation number three, all NARF GSE is not initially provisioned the same as at the IMAs. If NARF requirements are generated coincident with Fleet requirements, only then will NARF quantity requirements and the related funds be forwarded from AIR-414 to AIR-417 for consolidation, and subsequently to AIR-534 for procurement. At all other times, NARF requirements are provided on an as-required basis.]

This paper will now focus on some aspects of the budgeting and funding process within the Navy by which the GSE inventory is acquired and sustained.

III. GSE FISCAL CONSIDERATIONS

The Naval Air Systems Command is involved in virtually all GSE procurement, replacement, repair and calibration within the Navy today. By virtue of this involvement, NAVAIRSYSCOM is responsible for all GSE budget estimates through NAVAIR Codes 534 and 417 who prepare the recommendations and estimates.

Concrete GSE requirements vice projections are actually arrived at, in most cases, eighteen to twenty-four months prior to the start of the fiscal year. Projections are developed concurrently with weapons systems programs. A Tentative Program Objectives Memorandum (TPOM) is prepared eighteen months in advance of the fiscal year.

Since major program decisions are made in terms of program elements, a method of relating the costs of these programs has been established so that the relative economy or efficiency of the elements can be determined. Costs are broken down into the following divisions: research, investments and expenses. Figure III-1 portrays these cost categories as they relate to the time-phased life of a typical piece of IMRL equipment.

It should be pointed out that approval of a program in the Five Year Defense Plan (FYDP) does not automatically guarantee its funding since the budget is constrained by estimated national dollar resources. Because the resources

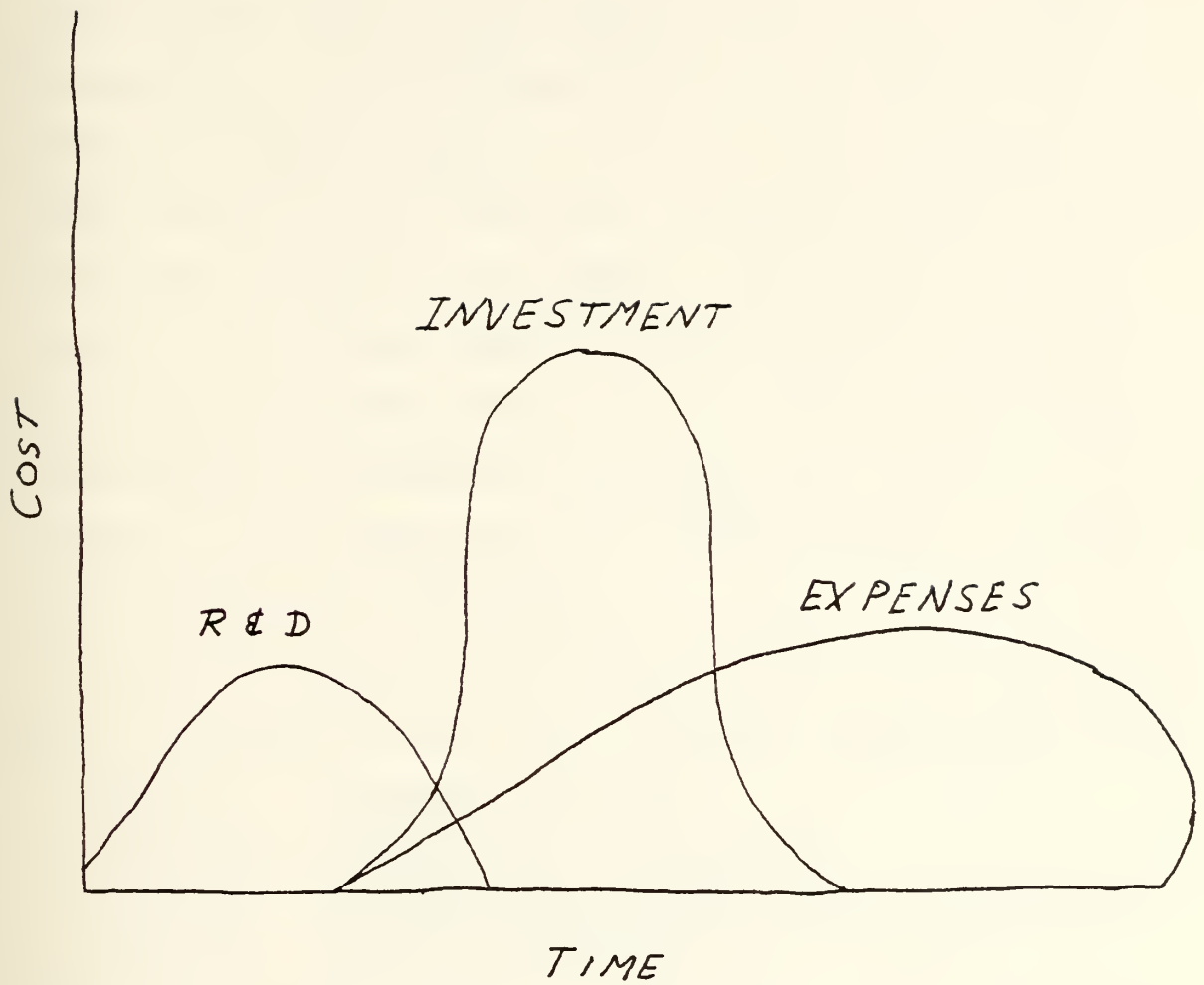


FIGURE III-1
COST BY CATEGORIES AS A FUNCTION OF TIME

which can be allocated to Defense in any given year are finite, some programs must necessarily be reduced or deleted when the budget is formulated. Resources are historically less than the total of the programs approved in the FYDP. Consequently, the FYDP is modified to reduce the overall Defense or Federal Budget, to provide for other programs of higher priority and/or because of increased costs associated with other programs in the budget. It is well to keep in mind that the Defense portion of the Federal Budget represents some 25% of the total, 75-80% of which is actually controllable (non-transfer payments/monies); this is in contrast to the other 75% of the Federal Budget, of which only 20-25% can be controlled.

Congress appropriates defense funds for the fiscal year in an Appropriations Act whose principal subdivisions are:

TITLE I:	Military Personnel
TITLE II:	Operation and Maintenance
TITLE III:	Procurement
TITLE IV:	Research, Development, Test & Evaluation
TITLE V:	Special Foreign Currency Programs
TITLE VI:	General Provisions

Titles II, III and IV are of particular interest to NAVAIR Codes 534 and 417 since these are the principal fund sources for IMRL operations/management. Table III-1 gives the breakdown, by command and appropriation account, of the dollar amounts tentatively approved for FY-77 GSE operations. More will be written later concerning those areas where question marks appear.

TABLE III-1
GSE MONEY ALLOCATION BY COMMAND

<u>TITLE</u>				
O&MN	SYSCOMREPLANT			
	Repair		10.9	
	Calibration		8.5	
	SYSCOMREPAC			
	Repair		11.8	
	Calibration		9.3	
	COMNAVAIRLANT		3.0	
	COMNAVAIRPAC		4.5	
	SQUADRON's	(3.2)*	?	
	AIMD's	(3.6)*	?	
	NARF's	(1.0)*	?	
				48.0
PROCUREMENT	NAVAIRSYSCOM			
	PAMN		250.0	
			50.0	
	SCN		.5	
	OPN		?	
				300.5
RDT&E	NAVAIRSYSCOM		6.5	
				6.5
	TOTAL			\$355.0

All amounts shown are in millions of dollars.

*Represents amounts actually spent in FY-76 which were reported.

Figure III-2 relates the major GSE appropriations accounts to the cost categories noted earlier and defined in the NAVAIR GSE Manager's Handbook as follows:

1. Expenses: Expenses are costs of resources consumed in use. These include labor costs, material consumed in use, and services received, except when these costs are incurred in the production or construction of investment items.
2. Investment: Investment costs are basically the costs of real property and equipment. IMRL outfitting of a major end item of equipment, such as a ship or aircraft, with furnishings, fixtures and equipment necessary to make it complete and ready to operate, is part of the initial investment cost.
3. Research and Development: R&D costs are program costs primarily associated with research and development efforts, including the development of a new or improved capability to the point where it is ready for operational use.

Initial procurement of Ground Support Equipment, including spares and repair parts, is an "investment" cost except for Navy Stock Fund (NSF) items which will be discussed later. GSE maintenance in the Fleet is an "expense" cost.

After passage of the Appropriations Act, the responsible NAVAIR offices make initial interpretations of the intent of Congress for the appropriations under their cognizance. They follow this with the preparation of a Budget Activity Allocation Request which is forwarded to the Navy Comptroller requesting allocation of funds in accordance with subheads spelled out in the appropriation in question.

The bulk of the NAVAIRSYSCOM ground support equipment money is tied to the applicable multi-year weapons system procurement allocation/appropriation. The systems project manager is directly responsible for the procurement estimate

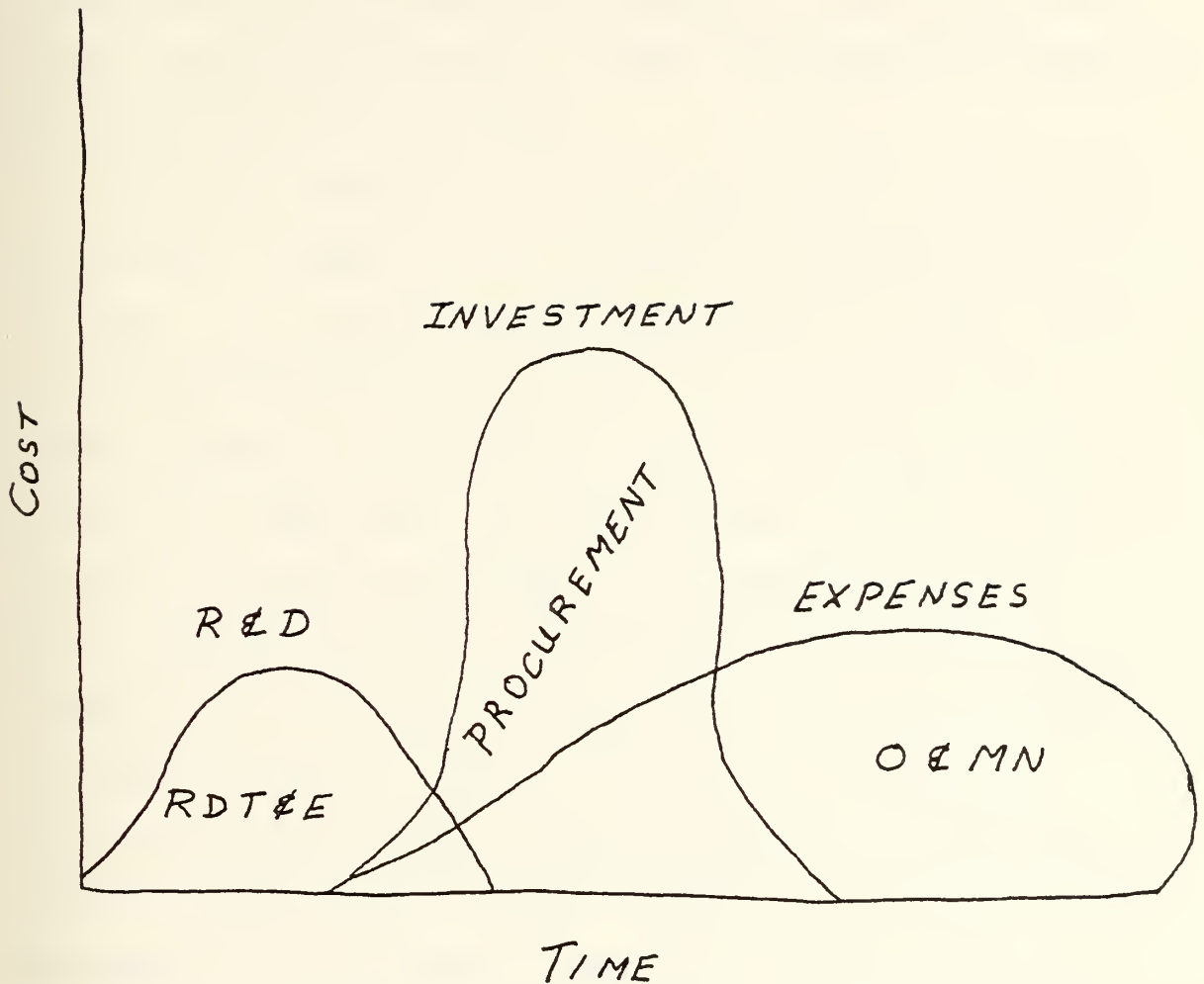


FIGURE III-2

COST BY CATEGORIES AS A FUNCTION OF TIME
RELATED TO APPROPRIATION TITLE

of GSE. The type of program involved, the type of equipment required and the phase of the program for which the equipment is needed are each important questions with which the project manager must deal. Within his purview is the entire work effort required to develop, produce and support high-priced, high-priority weapons systems.

The project manager heads a team of specialists whose talents are integral to the success of the particular project involved. In the case of aircraft weapons systems, members from NAVAIRSYSCOM Codes AIR-53411 (Aircraft-GSE Assistant Project Manager), AIR-410 and AIR-417 (Assistant Project Manager for Logistics) and Aviation Supply Office (ASO) Code SCW-4 (Inventory Manager) fill critical roles in so far as GSE is concerned. NAVAIRSYSCOM Code AIR-53411 is responsible to the project manager for ensuring that the GSE budget for his aircraft is complete and accurate. Each acquisition manager having cognizance over GSE for airborne systems must maintain costing information on the systems with twice-yearly reviews and updates. It is AIR-53411 who prepares GSE cost estimates for each maintenance level to be supported (organizational, intermediate and depot) in connection with the introduction of a particular aircraft weapons system.

The Aviation Supply Office representative contributes to the overall effort by converting NAVAIR provided quantity and utilization estimates into follow-on action to ensure that additional quantities of ASO managed GSE end-items are

budgeted, funded and procured in a manner to meet authorized allowance requirements and attrition. This entails determination of quantitative requirements of GSE end-items and ensuring that timely procurement actions are initiated for all GSE which is ASO managed. Additionally, as the Program Support Inventory Control Point for aviation systems and material, ASO must also ensure the availability of required GSE items which are controlled by other inventory managers.

ASO uses the data provided by NAVAIR Codes AIR-534, AIR-53411, AIR-410 and AIR-417 in the preparation of its own budget, including requests to increase Navy Stock Fund levels when necessary. NSF dollars are used to purchase non-APA (consumable) ground support equipment, and user activities replenish them with their O&MN (AFM/OPTAR) dollars each time one of their requisitions for replacement Report Code "C" equipment is filled.

GSE Assistant Project Managers are interested in RDT&E monies also. Research, Development, Test and Evaluation funds are used to promote or advance the state of the art for Naval weapons systems. It is not inconsistent, therefore, that such funds be used to insure that ground support equipment is available to keep pace with and support advances in these weapons systems. To that end, both NAVAIR Codes AIR-534 and AIR-53411 must envision future needs, conduct RDT&E and expend funds from RDT&E Budget Activity 6: Ordnance, Combat Vehicles and Related Equipment. It should be clearly understood, however, that project managers and their GSE

assistants are concerned solely with peculiar GSE development and acquisition!

NAVAIR Code AIR-534 is responsible for budget preparation involving RDT&E and procurement appropriations also. The bulk of AIR-534's budget money, though, lies in the area of common ground support equipment procurement and replacement material purchases. Budget estimates are prepared citing both support level and fund account, i.e., Appropriation Purchase Account (APA) or Navy Stock Fund (NSF).

The aircraft common ground support equipment element under the CGSE Line Item in the Aircraft Procurement Navy appropriation provides for initial outfitting of CGSE under NAVAIR inventory and technical management. These GSE end items are required for ground testing, servicing, handling and maintenance of aircraft and their systems. A comprehensive acquisition plan is developed for each CGSE requirement item to ensure that the equipment is ready for procurement by the budget year to determine the type of procurement action to be initiated, and to indicate a realistic plan for satisfying the fleet requirement for the CGSE end item.

The Aircraft CGSE Requirement List provided is the minimum constrained list of requirements. GSE Acquisition and Inventory Managers have thoroughly scrubbed this list to ensure that the qualitative and quantitative requirements for the specific equipments are satisfied. Fleet maintenance personnel participate in the CGSE Requirement List formulation process to ensure highest priority Fleet needs are

identified. The equipments which will be procured to respond to operational requirements are identified through one of the following processes:

1. The direct result of GSE RDT&E Program (these are equipments required to support advanced aircraft systems developments).
2. Reprocurement of current GSE required to respond to deficiencies.
3. Improved versions of current GSE required to support expanded airborne equipment capabilities or advanced airborne equipment developments (e.g., Mobile Electric Power Plant).
4. Major modifications of existing equipments (e.g., Engine Test Stand update).
5. Equipment developed to improve the capability of the Fleet and/or to improve safety.

The budget line item designated "ICP Managed GSE" funds the procurement of end-items of peculiar ground support equipment for out-of-production aircraft and systems, as well as common ground support equipment. These end-items of GSE are under the budget, procurement and inventory control of ASO, Philadelphia and SPCC, Mechanicsburg. ICP managed CGSE is normally developed in RDT&E, initially outfitted as NAVAIR managed, and then turned over to ASO or SPCC as an ICP item after the production specification and procurement package has been stabilized. Most PGSE items are associated with a weapons system and are recommended by the aircraft or airborne system contractor, reviewed and approved at NAVAIRSYSCOM and assigned to ASO for procurement and inventory management. The budget requirements for this element are generated as follows:

1. New CGSE required for site outfittings incident to employment of new weapons systems or equipment.
2. Replacement of CGSE and PGSE (for out-of-production aircraft and systems) resulting from wear-out and attrition.
3. Increased quantities of CGSE required for allowance augmentation.
4. Increased PGSE quantities (for out-of-production aircraft and systems) required due to changes in maintenance policy.

These GSE end-items (specified above) are "principal" items managed by the ICPs with no demand or usage criteria, and require more selective management attention than do the ICP "secondary" items (spare and repair parts). Figure III-3 depicts the overall GSE acquisition and material flow process.

It should be remembered that budgeting is not a "technical accounting matter" concerned only with the "keeping of books." It is within the framework of the budget formulation process that programs must compete for approval and implementation. Just as plans are meaningless unless they are approved for inclusion in the FYDP, programs must be included in the budget. In this accounting process, plans are translated into programs, and programs are incorporated into budgets selectively.

In the budgetary process, the program in the FYDP is revised to reflect the decisions of the Secretary of Defense. The revised program is converted to the appropriation structure for the three-year period to be included in the budget. In constructing the budget, NAVAIR provides a breakdown by cost element for each item. Last-year, current-year and

budget-year costs are presented and justified. Fiscal-year costs, when included, relate the item element to the FYDP estimates. In the budgeting phase of GSE management, such areas as production schedules, prices, lead-time, activity rates, personnel grade structure and training requirements are required to reflect completely the program proposed for inclusion in the budget.

The budget formulation process is characterized by successive reviews and decision points. It is a characteristic of this process that many items proposed for approval are reduced or eliminated. Though it is possible to criticize this process on the grounds of time and talent required, it does serve some essential purposes. The objective of the process is a budget that provides the best possible military worth and program balance within the limits of anticipated resources.

The concept of a balanced budget is to provide the maximum value output for a given level of expenditure; this implies a condition of balance such that no item is included in the budget that is less essential than any item not included. In order to approach this ideal, it is necessary to weigh alternatives. Different items competing for inclusion in the budget must be compared. To provide for this choice, it is necessary that more items be considered initially than can be included in the approved list submitted to higher authority.

In general, lower-level activities consider a list of requirements that exceed what can be approved. In the case of GSE budgeting, lower-level activities would be COMNAVAIRLANT, COMNAVAIRPAC, NAVAIRSYSCOMREPLANT and NAVAIRSYSCOMREPAC. Commands reviewing submissions from these activities - CINCLANTFLT, CINCPACFLT, NAVAIRSYSCOM, CHNAVMAT and OPNAV - will consolidate them and bring the entire list into balance with the POM by eliminating or reducing items considered to be marginal in that context. This process at all levels of review is designed to develop a close approximation of a balanced program for submission to the next higher echelon, where the process is repeated as balance is sought in a broader arena. The process continues to the Congressional level, where Defense needs are ultimately balanced against other government demands.

The Procurement Title of the Appropriations Act is further divided into four segments, two of which are of particular interest to the GSE manager. By far the largest dollar users, Aircraft Procurement/Weapons Procurement, Navy (APN/WPN), finance the cost of aircraft and missile acquisition as well as the support equipment associated with them. Additionally, they provide for the necessary safety-of-flight and operational modifications (OSIP) to service aircraft; the funds for Operational Safety Improvement Program (OSIP) are budgeted by AIR-534 vice the project manager's GSE assistant, AIR-53411.

In order to achieve a greater contribution to military worth management effectiveness often dictates that funds be spent for purposes other than those for which they were originally intended. However, monies must be expended for essentially the same purpose as that for which they were justified before Congress. Consequently, they can not be reprogrammed except through Congressional approval, although where small dollar sums are involved, this approval is rather perfunctory and routinely given through informal channels.

The lowest level of reprogramming occurs within monies allocated to a specific program; NAVAIR Codes AIR-05, AIR-534 and AIR-53411 have authority to reprogram, within prescribed dollar limits, among the different GSE programs. Where dollar values are unspecified and/or large sums are involved, reprogramming, if necessary, must occur at the CNO level. When amounts of five million dollars or more are involved, Congressional approval of reprogramming is required. It is not the intent of this paper to discuss reprogramming except to note that AIR-534 has more latitude in this area than do project managers whose funds are tied to specific programs.

Shipbuilding and Conversion, Navy (SCN) funds are used for expenses necessary for the construction, acquisition or conversion of vessels. Within this area, monies are allocated to NAVSEA for special items involving aircraft support common to several aircraft or weapons systems which are integral to the ship's construction/conversion. When

this type of construction/conversion is necessary, GSE cost estimates are provided by AIR-534 to AIR-537, Ship's Installation Division, which in turn maintains close liason with NAVSEA and arranges for the transfer of the requisite SCN funds when budget approval is reached. As a matter of record, it should be pointed out that the cost of the actual installation, labor hours and the like is estimated by AIR-537 in concert with the affected shipyard. NAVAIR Code AIR-534 does not get involved in these latter estimates.

Other Procurement, Navy (OPN) funds are used for GSE acquisition or replacement purchases occasionally, though rarely. In those instances where such funds are employed for the initial program, all future buys must also come from that same source.

In this chapter the problem of estimating the budget and funding GSE at the NAVAIRSYSCOM level has been discussed. In the following chapter, the acquisition, repair, calibration and funding (the areas noted by ?'s in Table III-1 on page 18) of GSE at the local level are examined.

IV. LOCAL GSE MATERIAL MANAGEMENT

Each command operating or supporting aircraft maintenance evolutions is required by COMNAVAIRLANT/COMNAVAIRPAC to have an IMRL manager whose job it is to maintain close liason with CNAL/CNAP, keeping them advised of all GSE requirements and transactions. The Support Equipment Asset Management System (SEAMS), also known as the Local Asset Management Subsystem (LAMS), and the Closed-Loop Reporting System have been implemented specifically to assist in accomplishing these tasks.

The AMMRL system establishes procedures and associated responsibilities to determine the quantity, location and condition of GSE in-use assets. Integration of the Closed-Loop/LAMS systems is intended to provide all levels of management with a reporting system that will provide optimum visibility of in-use and/or in-transit GSE assets.

A subsystem of the AMMRL program, LAMS is a computer oriented control system intended primarily, but not exclusively, for standardized GSE asset control at the intermediate level. The need for a standardized automated system with which to control inventory, issue, receipt and recall of GSE has long been a recognized requirement in positive accounting for Fleet in-use IMRL assets. This system interfaces through automatic data processing (ADP) facilities with the Closed-Loop Reporting System and is intended to provide:

1. An automated inventory list for GSE managers identifying equipment for which the AIMD has responsibility for custody, preventative maintenance (PM), repair and/or calibration.
2. A means whereby inputs can be made to a master inventory file on an as-occurring basis in order to facilitate maintenance of an up-to-date record of transactions such as equipment gains and losses, subcustody issues and receipts.
3. Certain periodic machine reports to management reflecting the nature, extent and location of the inventory and the verification of routine system transactions. Daily, weekly, monthly, quarterly and yearly management (ADP) reports are provided to summarize all GSE inventory transactions; subcustody data is included.
4. An effective interface with the AMMRL program through automated inputs of transaction reports (TRs) employed in the construction of the IMRL.
5. Additional machine reports as may be required for higher levels of GSE management.

For purposes of general amplification, transactions to be reported under LAMS include: (1) issues of GSE on a subcustody basis to supported activities; (2) GSE inventory changes such as equipment gains, transfers and strikes due to survey; (3) returns/receipts of GSE from subcustody; (4) recording of new calibration/PM dates; and (5) corrections required to ensure accuracy of inventory data.

The Closed-Loop Reporting System is primarily a GSE in-use inventory reporting and tracking system. Organizational and intermediate maintenance activities responsible for the custody of GSE as assigned by type commanders (TYCOMS)/controlling custodians are known as reporting custodians. The majority of GSE allocated to reporting custodians is for the purpose of supporting other activities within a geographical area through subcustody procedures.

Reporting custodians are required to update the inventory file by completing IMRL transaction reports, Figure IV-1, whenever a permanent change of reporting custody takes place. Appendix A contains explanatory data which covers all possible transactions. The completed IMRL TRs are forwarded to the respective NASCR for updating of the central file.

Both Naval Air Systems Command Representatives have established a Consolidated In-Use Inventory File of accountable aviation GSE for all IMRL activities within each assigned area. All GSE in the ADMRL files not coded "C" (non-reportable) is subject to reporting. The information contained in the above file is based upon data obtained from GSE TRs and periodic physical inventory reports submitted by reporting custodians to the appropriate NASCR when an end-item of equipment is received, transferred or surveyed by that reporting custodian.

The respective NASCRs forward quarterly consolidated accountable in-use GSE inventory reports to ASO, SPCC, NAVAIR Code AIR-417 and Area Commanders (COMFAIRs, MAWs, etc.). Monthly reports are forwarded to the ACCs. These reports provide the information required to determine the material readiness condition of each activity. Through consolidation of these reports, determinations can be made concerning the material readiness condition of specific areas, individual commands and the overall Navy-wide position. These reports are also required for management decisions at all levels in the redistribution of equipment, development of budget

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1. UIC	2. LCN	3. SERIAL NO.	4. DATE	5. TIME	1. GAIN	2. TRANS	3. SURVEY
6. I/P/L TRANS. YES NO	7. TRANS. SEQ. NO.	8. REC. FROM/TRANS. TO	9. QUANTITY		4. ISSUE	5. RETURN	6. CORRECT
10. HSN/FSN					23. DATE DUE	24. STATUS	25. QTY.
					26. SUBCUST ORG/WC		
11. PART/MOD NO. (20 digit maximum)					A. RECEIVED BY (Signature, rank or rate)		
12. NOMENCLATURE (15 digit maximum)					RETURN		
13. MANUFACTURER'S CODE					27. STATUS	28. QTY.	29. SUBCUSTODY ORG/WC
14. PRICE NIN/FIN				15. I/P/L IT.	B. RECEIVED BY (Signature, rank, rate)		
16. A/A				17. TOT. O/H			
18. CAL/PM SITE				19. DATE DUE	20. W/C	21. STATUS	22. E/C
34. AUTHORITY (22 digit maximum)							
					CORRECTION		
					30. UIC	31. LCN	32. SERIAL NO.
					33. DATE		
					C. SERIAL NO.		
					D. DATE DUE		
					E. SUBCUST. ORG/WC		

FIGURE IV-1

GROUND SUPPORT EQUIPMENT TRANSACTION REPORT (TR) CARD

requests and equipment procurement. The ideal management information system, of course, provides the right information to the right person at the right time to allow effective management decisions. However, management information systems are only as good as their input data, and when such data is incomplete as is often the case with GSE reports, they fail to achieve optimum value.

The accountable GSE inventory data established from the information contained in the above reports are validated on a periodic basis through physical on-site inventories of on-hand accountable GSE when directed by ACCs or NASCRs in accordance with procedures established by the ACC/NASCR directing the inventory. Each reporting custodian accomplishes this validation at least yearly.

A design feature of the Closed-Loop Reporting System is the self-policing capability it possesses. A suspense file is generated for all GSE assets as they are transferred from one activity to another. The file remains active until a receipt action is reported by the recipient activity. In addition, an asset once reported remains "locked in" the inventory files until an authorized deletion is processed. Pre-entry validation is accomplished on all data entries to preclude the inclusion of erroneous data.

Improved GSE in-use asset visibility can be further improved through a strengthening of controls at IMRL activities by first, submitting GSE TRs in a more timely manner, second, increasing subcustody record accuracy and third,

improving physical inventory procedures. For example, of the 101 items reviewed for compatability of custody and subcustody records as NAS North Island during the '72 Navy Area Audit, differences were found in nearly 50% of the cases. As a part of the overall study, six activities were examined for IMRL inventory accuracy and found to be valid only 87% of the time. There is no reason to believe this situation has changed appreciably since 1972.

At no time are on-hand quantities to exceed allowances except in those instances where CNAL/CNAP approval is received. Ideally, of course, all GSE excesses would be identified and turned in to a central receiving point for repair and/or calibration and subsequent distribution to those commands with allowance deficiencies. At the same time, savings would accrue with the resultant elimination of unnecessary requisitions and special procurements or buys.

Within the reporting activity, an individual is designated as the IMRL manager. Normally attached to the material control division, his duties as IMRL manager are typically a collateral responsibility. Charged with maintaining an up-to-date inventory of accountable equipment authorized by the activity's IMRL, the manager accomplishes this via the subcustody process, distributing GSE to the division within the reporting activity that is responsible for the servicing and maintenance of that equipment. See Appendix B

and its accompanying operational flow diagram for a more graphic and detailed explanation of this evolution.

Once equipment is received by a reporting custodian, it will remain in the permanent custody of that custodian until higher authority within the chain-of-command directs otherwise. No item of equipment is moved from one activity to another on a permanent custody change without authorization. In case of equipment survey, disposition procedures are requested and received from higher authority, normally the respective NASCR.

Controlling custodians may require reporting custodians to report consumable equipment, report code "C." Commonly known as total reporting, such equipment is controlled and tracked throughout the fleet by TRs in the same manner as discussed above.

The reporting programs just discussed were implemented fleetwide in an attempt to get a better handle on GSE management, but some problems are inherent in the system and do not lend themselves to immediate elimination. There is little assurance that reporting custodians will submit TRs on time and/or when required. Higher level management has no way of knowing if equipment is actually shipped when directed; or if GSE is lost or delayed in transit; or when it is received (new or used) by a reporting activity unless they specifically request message confirmation or some equivalent.

TRs are the information documents used to update in-use inventory; if they are not submitted when required or are

submitted and then lost, the files are not updated, and management receives erroneous information relative to an activity's mission capability. This also results in a false assessment of the overall assets available thereby complicating predicted future buys.

Incoming TR data are compared with ADMRL data for matching of Federal Stock Number/Part Number (FSN/PN). If the incoming data does not match, the item will appear as a "code 4" indicating a mismatch or reporting of an item not authorized by the ADMRL source data. The incoming data may be correct for the fleet but due to changes in the FSN/PN or outdated nameplate data, the information will not match ADMRL data, which may also be correct. This results in identical items being listed on several inventories as "code 4's" under different identifying data, causing an error in the total inventory.

When an item is transferred from one activity to another, the transfer TR drops that item from the inventory, and the item will not be picked up again until the receiving transaction report is submitted. Items in-transit are in limbo, as they do not appear on any inventory. At any given time, management does not know what the total inventory is, how many items are in-transit, or the average delay transit time. Problems in this area are presently handled on an individual basis.

Non technical problems exist also, one of which is particularly vexatious and not likely to be alleviated by

implementation of either LAMS or Closed-Loop. IMRL management personnel are not specifically trained for the position of "IMRL managers," and generally train themselves by the trial and error method. The condition of the activities' inventories normally coincides with the amount of individual motivation possessed by the appointed GSE manager.

The majority of changes to the overall system as dictated by LAMS/Closed-Loop implementation are centralized within the computer programming and processing of data transmitted by the IMRL TR and are directed toward the problem areas previously noted. The relationship of the user organization of major components of LAMS and the interrelationship between Closed-Loop (upper) and LAMS (lower) management levels is pictured in Figure IV-2. The interface between these systems is an automatically generated TR between the two level's computers and a machine readout transmitted to the custodian of the lower level system.

Improvement is required in other related areas as well, and while LAMS/Closed-Loop implementation will facilitate the improvement process, these programs are not the sole answer. Proliferating quantities of IMRL already in-use could be curtailed by expediting the removal of potentially excess GSE from aircraft carriers resulting from IMRL allowance changes. Project Offload, as this program is known, could result in substantial cost savings if conscientiously applied.

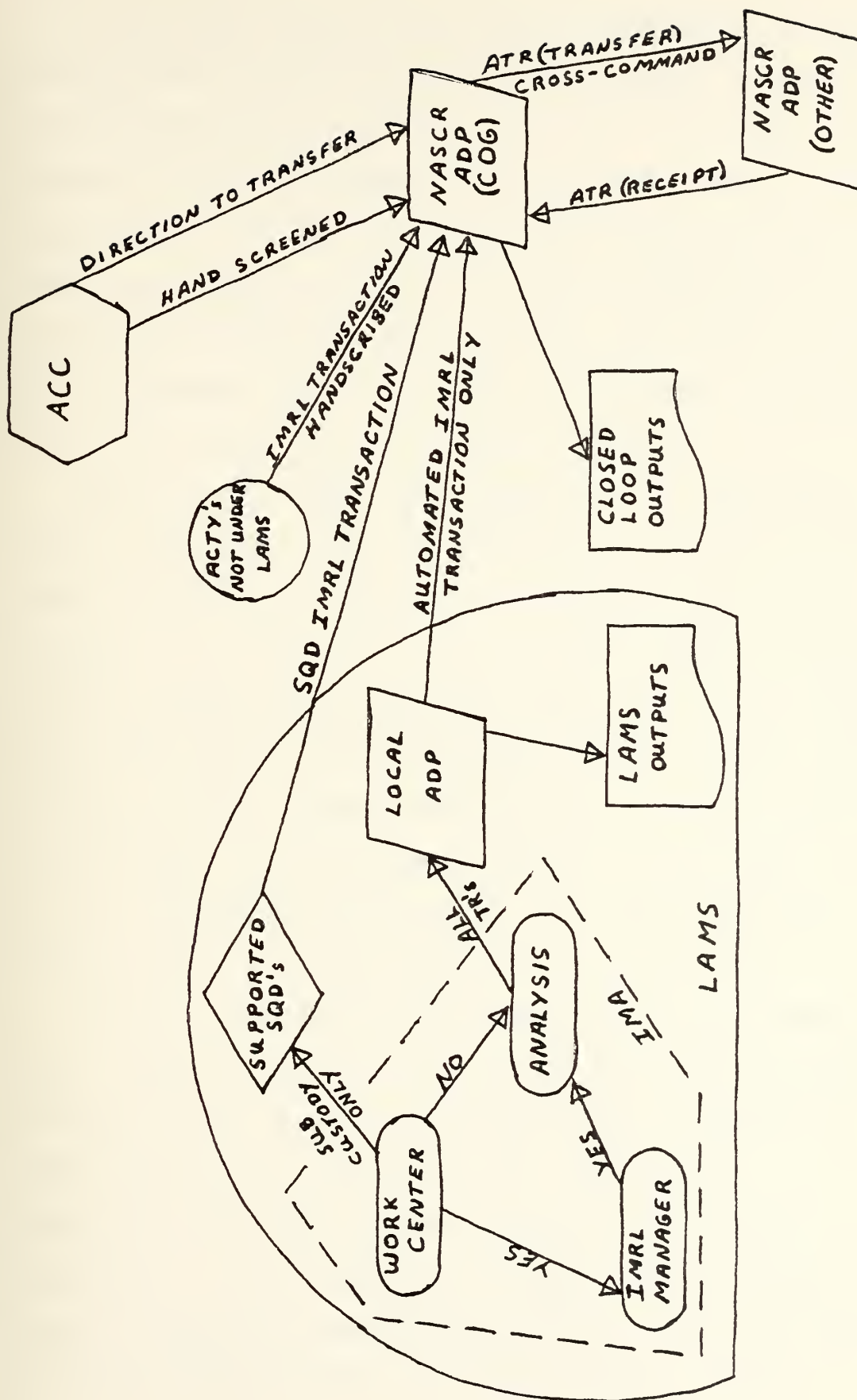


FIGURE IV-2

GROUND SUPPORT EQUIPMENT TRANSACTION REPORT CARD FLOW

It has been argued that processing might be better accomplished within the Naval Supply System to improve accountability and disposition. But these same ends could be achieved within the present system through better coordination between the IMRL activity, NASCR, CNAL/CNAP and ASO. Something, however, needs to be done as attested to by a '72 Naval Area Service Audit finding: an offload of 943 GSE line items, worth \$1.9 million, resulted in accountability for only 56 items valued at \$110,000.

Reporting of excess GSE, regardless of the source, must be improved to ensure effective utilization of in-use assets as well as maximization of scarce resource GSE dollars. In 1972, assets valued at 18.5 million dollars in excess of operating requirements were found by the Navy Area Audit Service team. Some 40% of these assets were listed on IMRLs and were determined to be excess based on actual needs. Such excesses, wherever found, could be used to fill system-wide deficiencies, but most activities involved fail to request disposition instructions.

Finally, significant savings in procurement expenditures and a reduction in the volume of GSE requisitions processed at ASO could be realized by increasing the emphasis on using excess in-use assets to fill requisitions. It is Navy policy that the in-use asset system provide material, if available, to fill activities' needs. However, ASO, the central requisition processing activity, lacks the authority to direct redistribution of in-use assets. Better

management at CNAL/CNAP and between controlling custodians and reporting activities would obviate the need for ASO to have such authority.

As with any management aid, limitations exist, and the LAMS/Closed-Loop programs are no exception. One of the most important aspects of these programs is that they will not, by themselves, manage equipment assets; they only provide tools for management. Unable to operate by themselves, they require trained individuals to analyze and put to use the collected data. How well they will aid management still depends largely on the human element involved, and their degree of training and motivation and expertise.

At present, input/output data is transmitted via mail with no appreciable adverse effects; however, delays and losses are not uncommon. With the daily technological advances taking place in the communications medium, though, it is not inconceivable that transmittal will one day be more timely.

LAMS and Closed-Loop were designed to operate as inventory control systems only. They do not track or record condition, maintenance or utilization information although revisions may be made to include this data at a later date. Neither is the system presently designed to operate on a "real time" basis. While input data may be processed on occurrence, some output information may lag as much as three months behind, depending on the type of information

desired. This process may be speeded up by "hand massaging" without interrupting system operation, but it is cumbersome and not very cost effective.

System accuracy depends at the bottom line on data originators and management personnel. Every effort has been made to ensure a viable cost effective automated data processing system, but in the final analysis, the system can only process the information it is supplied.

V. LOCAL GSE FINANCIAL MANAGEMENT

In order to perform maintenance on assigned aircraft, a significant amount of ancillary common and peculiar ground support equipment is required. The majority of this equipment is Appropriation Purchase Account (APA) material and is provided without charge to user activities. An additional portion of allowed GSE is the funding responsibility of COMNAVAIRLANT/COMNAVAIRPAC and is specifically budgeted for in the O&MN Appropriation. IMRL outfitting funds are granted by CNAL/CNAP to organizational and intermediate maintenance activities for the purpose of obtaining initial issue non-APA ground support equipment. In the past, monies for this purpose have been called by a variety of names such as Fleet Outfitting-Test Equipment Funds, BPN-09 Funds, IMRL Funds, Delta Funds and Initial Outfitting Funds. Outfitting requirements may originate when:

1. A new type or model aircraft is introduced to Fleet units.
2. A current aircraft model is assigned to a different activity.
3. There is a change in the number of aircraft at a location.
4. Aircraft configuration changes occur due to implementation of technical directives, modification programs, etc.
5. There is a change in design of allowed ground support equipment.
6. There are allowance list changes.

CNAL/CNAP determine the need for IMRL outfitting funds. These decisions are customarily made concurrently with IMRL conferences which are conducted with ship and squadron representatives upon return from deployment to revise IMRL requirements preparatory to the next cruise. Shore installations, squadrons and AIMDs ashore conduct such conferences on an as-needed basis.

At the user level, O&MN funds take the form of OPTARs for squadrons and Aviation Fleet Maintenance (AFM) funds for Aircraft Intermediate Maintenance Departments (AIMDs), air stations and facilities and finance the replacement of allowance list non-APA items due to loss, attrition or destruction. No prior authority is required to initiate replacement action provided funds are available locally (within the command's OPTAR or AFM budget). AFM/OPTAR funds can be considered the end-use money which is used to buy maintenance material either from local inventories or directly from other military or commercial suppliers. More precisely, these monies are expended for the purchase of Navy Stock Account (NSA), Defense Supply Agency (DSA), and General Services Administration (GSA) materials and supplies consumed in the performance of aviation organization and intermediate levels of maintenance. AFM/OPTAR expenses for IMRL are a direct result of requisitions submitted for these equipments which are subsequently delivered from inventory or received on a direct turnover basis from a supplying agency.

In general, if the IMRL item is Report Code "C" it is funded out of O&MN money; if it is Report Code "R" it is repairable at the depot level and is an APA item. At the present time, however, no accurate data is available on the total dollars spent by user activities for the replacement of non-APA GSE. Although CNAL/CNAP require utilization of special fund codes to identify initial outfitting IMRL dollars spent by subordinate activities, neither type commander has seen fit to require use of a special fund code when AFM/OPTAR monies are used to purchase end-item replacement GSE.

Admittedly, a program would be required to extract the data, and it would require time to fully implement (estimated by both CNAL/CNAP to be about 18 months), but these hardly seem serious drawbacks when viewed in terms of DOD dollars. Perhaps it is unrealistic to expect GSE management personnel at NAVAIR and TYCOM levels to have such information, but given today's fiscal constraints it only seems prudent for GSE managers at all echelons to have such data accessible; at present, this data is not available nor is it being obtained or kept on a uniform basis anywhere within the Navy. If any doubt as to the validity of this statement existed, it was erased with publication of a Navy Area Audit Service special review of AFM funds completed in early 1977. The study confirmed that neither TYCOMs nor users had an adequate grasp of the extent to which AFM/OPTAR funds were being used, either legitimately or otherwise, for GSE

purchases. Such practices seem inconsistent with sound management principals.

When it has been determined that an IMRL item is required, a requisition is put into the system using the appropriate fund codes as they presently are employed. COMNAVAIRLANT, COMNAVAIRPAC, NAVAIRSYSCOMREPLANT and NAVAIRSYSCOMREPAC maintain inventory asset listings by command for all reportable GSE held. Whenever a change occurs in the status of these assets, it is the organization's responsibility to advise their respective cognizant IMRL controlling custodian using procedures outlined in section IV of this paper. This includes those actions involving surveys which are generated as a result of loss or destruction and require CNAL or CNAP notification; NASCRL and NASCRP must approve surveys for items costing \$1,000.00 or more.

One other aspect of IMRL funding remains to be addressed, that of repair and calibration. NAVAIR Code AIR-417 maintains cognizance over the O&MN monies used for this purpose by NASCRL and NASCRP. Regular periodic maintenance is required on virtually all GSE to maximize its useful life. To that end, over \$40 million is budgeted in FY-77 just for this purpose, with a 52% allocation to NASCRP activities. This money is further divided between the physical repair and calibration program on the basis of a 56/44% ratio and also includes about one million dollars a year spent in overseas areas for commercial contract work.

The Ground Support Equipment Depot Level Rework Program provides funding for depot maintenance performed on all end-items of IMRL under the cognizance of NAVAIRSYSCOM, ASO and SPCC. Depot level rework for GSE is a process by which an IMRL item (Report Code "R") is inducted into a depot facility, evaluated by an Examination and Evaluation (E&E) engineer, disassembled, repaired and checked in accordance with GSE rework specifications. The objective of the process is to ensure the item will perform satisfactorily for a full service tour, normally 24 to 36 months. The work accomplished at the depot level and funded by this program is a level of maintenance beyond the capability of the military personnel working at the organizational and intermediate levels of maintenance. Weapon system readiness is dependent upon the ready availability of operationally reliable GSE. This requires that the GSE be maintained and supported to the same degree as the weapons system itself. Where assets are limited or there is a "one-of-a-kind" asset positioned at the AIMD, it is essential that depot level repair/rework/calibration be accomplished in the most expeditious manner to preclude interrupting Fleet operations and to avoid extending the inspect and repair cycle for airborne systems due to inoperable GSE.

A number of changes could be implemented to improve the management of GSE maintenance at the depot level. Providing maintenance plans for PGSE, for example, would help promote efficient life cycle support of systems or equipments.

It has been suggested that maintenance managers for the PGSE which is essential to systems support be designated much as they are for aircraft end items and major systems. At present, of the more than 1500 avionics systems, less than 10% have maintenance plans, and only 70 PGSE line items were found to have such plans during the '72 audit, indicating a very real deficiency in this area and calling into question the thoroughness of maintenance practices employed to repair that peculiar ground support equipment which is currently in use.

It has also been found that significant quantities of GSE are scheduled for repair through the In-Use Equipment Repair Program (customer service) at NARFs while sufficient ready-for-issue (RFI) assets are available in the supply system to satisfy demands. The potential for incurring unnecessary repair costs is substantial since GSE that is repairable only at the depot level is often turned in (inducted) requiring expeditious repair to meet requirements placed on the activity or command; this kind of situation typically arises immediately prior to deployments, at-sea periods, special exercises and other operations which are similar in nature. If overtime is involved, and it frequently can be, costs may well get out of hand. This particular problem could be alleviated somewhat by requiring non-RFI IMRL to be returned to the supply system for repair through the Navy Integrated Comprehensive Repairable Induction Scheduling Program (NICRISP) and using available

system stock. Obviously, supply response time is critical to the success or failure of this suggestion.

Additionally, substantial sums are expended at the user level on calibration and repair. Table V-1 gives the documented amounts spent in-house on these evolutions exclusive of the formal depot program just discussed. Precision Measuring Equipment (PME) is simply a further delineation of CGSE/PGSE. It must be pointed out, however, that this data is taken from Maintenance Data Collection System (MDCS) Card Type 60 Reports and is extremely suspect since it is estimated that only one out of three reports is ever submitted to document repair/calibration actions. It is hoped that implementation of the Naval Aviation Logistics Command Management Information System (NALCOMIS) and its counterpart, Visibility and Management of Support Costs (VAMOSOC) will facilitate better control of all aspects of GSE/IMRL management.

TABLE V-1

FY-'76 USER REWORK/CALIBRATION EXPENDITURES

ORGANIZATION

	LABOR	MATERIAL
CGSE	\$13,971,381	\$2,045,040
PGSE	256,017	493,379
PME	67,199	702,184
SUB-TOTAL	<u>\$14,294,597</u>	<u>\$3,240,603</u>

INTERMEDIATE

	LABOR	MATERIAL	OTHER
CGSE	\$13,551,927	\$ 778,527	\$1,293,109
PGSE	1,293,335	52,967	928,466
PME	6,172,156	230,423	315,601
SUB-TOTAL	<u>\$21,017,418</u>	<u>\$1,061,917</u>	<u>\$2,542,176</u>

NARF

	LABOR	MATERIAL	OVERHEAD
CGSE/PGSE	\$331,918	\$1,024,897	\$449,840

TOTALS

LABOR	MATERIAL	OTHER	OVERHEAD
\$35,643,933	\$5,327,417	\$2,542,176	\$449,840

NOTE: Intermediate level "other cost" is based on 20% of the value of the GSE involved and represents that GSE which, once repair had begun, was completed or scrapped above the intermediate level.

VI. GSE MANAGEMENT - A BETTER WAY

Positive in-house inventory and accounting procedures close the loop in the budgeting and management of IMRL assets. Historically, IMRL management at the user level has left much to be desired, and the loss of valuable equipment has all too often been excessive. Frequent inventories alone, however, will not eliminate the problem. A coordinated multi-faceted program is what is called for and is absolutely essential at all levels where GSE is managed if inventory losses and undocumented transfers are to be curtailed.

Efforts to define and centralize management roles notwithstanding, various discrepancies exist in reporting and accounting for GSE at the user level relative to both excesses and deficiencies. For example, audit service studies from '68 through '71 revealed field level excesses and deficiencies totaling \$13.2 and \$.8 million respectively. Another audit in 1972 of control procedures applied to IMRL at all levels of management uncovered continuing accountability problems, primarily resulting from a failure to tailor IMRL allowances to actual Fleet activity needs; these problems have not been completely resolved by introduction of LAMS and the Closed-Loop Reporting systems.

Redistribution and ASO procurement might be more effectively planned if GSE allowances were tailored to more accurately reflect requirements. In many instances,

deficiencies can be satisfied with on-hand quantities which are sufficient to meet demands. ASO's current buying policy based on allowance deficiencies may well result in unnecessary purchases of GSE that IMRL activities neither request nor use. The '72 study confirmed the suspicion that previously reported discrepancies all too often remained uncorrected even though letters to the contrary had been submitted.

Problem areas cited most frequently were:

1. Fragmented GSE management at the NAVAIRSYSCOM level.
2. Limited technical screening sources available to engineers reviewing contractor submitted Support Equipment Requirement Sheets (SERS) and Support Equipment Lists (SELS).
3. Inaccurate GSE in-use asset reports.
4. Non-enforcement of established procedures by ACCs and NASCRs.
5. The method in which GSE requisitions are submitted to ASO, and the method used by ASO when computing purchase requirements.

The unmistakable conclusion to be drawn from this is that an unnecessary profligation of GSE inescapably results. The '72 audit report estimated that some \$53 million could be saved if these abuses were corrected. Almost all of these discrepancies were found at IMRL activities in the form of redistributable excesses, invalid deficiencies, and unnecessary requisitions and planned procurements. Yet, the review involved only 14 of 725 IMRL activities (OMAs, IMAs, NASSs, etc.).

It should be understood that two rather semi-autonomous spheres of control - NAVAIRSYSCOM and the Fleet - exist with

respect to IMRL management. And although this paper attempts to follow the normal lines of decision making, no attempt has been made to address in any detail NAVAIR management with its attendant planning and development through such evolutions as budgeting, review and approval of support needs, acquisition, deliveries, and logistics maintenance plans. NAVAIRSYSCOM, NAVAIRENGCEN, NAVPLTREPO and ASO are the key commands in these phases of management. The primary concern in this thesis is control of GSE in the Fleet because that's where better management must begin if improvement is ever to be significant. Implicit in any discussion of such is maintenance and utilization of GSE at NARFs, procurement and data management at ASO, the function of ACCs and NASCRs and control/accountability aspects of the program at all IMRL activities.

At the local level, a successful program must begin with the proper identification of an item as IMRL when it is received on board. The following steps have been effectively employed at at least one large command and are presently being recommended by COMNAVAIRLANT Maintenance Management and Advisory Teams in their visits and inspections of Atlantic Fleet commands. They are presented here simply for information purposes.

1. Pictures of each reportable IMRL item are taken and attached to custody cards, one for the command master file and one for the division/work center holding the asset on subcustody.

2. Key-punched card decks are prepared for all primary and alternate IMRL equipment held on board and are updated as equipments are received. These cards contain NIIN, PN, serial number, IMRL number, report code, quantity and subcustody information.

3. Computer printouts by work center (subcustodian) are updated on a monthly basis by the cognizant shop and returned to the IMRL manager.

4. Quarterly physical inventories with card decks provided by the IMRL manager are conducted by the work center supervisor and Division Officer.

5. Yearly physical inventories are conducted by the IMRL manager.

A problem of considerable magnitude, particularly in a shipboard environment, is initial identification of an item as GSE as soon as it is received by Supply. In those cases where the material is received on a local requisition (document number) the problems are minimized. Frequently, however, equipment arrives from other commands or directly from the contractor/manufacturer with no discrete IMRL identifier and is misrouted, lost or put into storage. It goes without saying that readiness is adversely affected, money and time are wasted and all too often another activity is required to "draw down" (transfer one of its assets) until the missing piece of GSE can be located, a task of sometimes interminable duration.

Solutions to these problems are not easily achieved but a few possible approaches are suggested. All GSE should be identified with a code unique to IMRL equipment for both document/shipping data and physical/nameplate identification. As a consequence, all GSE would be more readily identifiable

at the receiving activity, and even if the paperwork were to be lost (as is so often the case) the ID plate would identify the item as a piece of IMRL.

At the present time, IMRL numbers differ from activity to activity for the same pieces of GSE. If these numbers were assigned such that an IMRL item had only one number, regardless of the activity to which assigned, disposition instructions from higher authority, attendant correspondence and tracking would be simplified as would record keeping, particularly at the NAVAIR, NASCR and TYCOM levels.

Another possible approach to this problem is for the AIMD to take over responsibility for shipping and receiving of all aviation material, thereby relieving Supply of this function. It has even been suggested that the AIMD assume all responsibility for aviation supply, and two pilot projects with this objective in mind were conducted aboard USS SARATOGA and NAS JACKSONVILLE with encouraging (positive) results. By so doing, it is thought that GSE would be moved more expeditiously, internal loss in the shipping/receiving process would be minimized and faster identification could be achieved by utilizing maintenance personnel who, by virtue of their ratings and backgrounds, would naturally be more familiar with (and careful of) the equipments involved.

This is not intended as an indictment of the Supply Department but rather is noted simply to focus attention on another potential problem area for the IMRL manager and

one over which he presently has very little or no control. Interestingly enough, the Supply Officer is specifically tasked with preparing and maintaining an accurate current inventory of all reportable CGSE/PGSE (IMRL). It has been the author's experience, though, that few Supply Officers get concerned with this requirement until Administrative/material or Aviation Supply Inspection time, and, in practice, the Assistant Aircraft Intermediate Maintenance Department Officer or Material Control Officer actually maintains management and inventory control of the IMRL as well as the master file of custody cards.

Taking pictures of each primary and alternate IMRL item held at the local level is a time consuming and costly undertaking. A better approach would be to print enough pictures of each piece of GSE (and subsequent visible changes) so that when it is distributed each recipient would receive two copies. The key to success with respect to this suggestion would be to keep up with changes and equipment improvements and to ensure that all IMRL activities received their requisite copies in a prompt and orderly fashion.

Finally, to repeat a suggestion made earlier in the thesis, TYCOMs or NAVAIR should assign a discrete fund code, like those used to identify IMRL Outfitting Funds, for all GSE replacement purchases (OPTAR/AFM monies). Positive control of Ground Support Equipment necessitates a thorough appreciation of both financial and material

management procedures. A clearly discernible audit trail is an absolute imperative. It is antithetical to sound management policy to not know, as is presently the case, how much is being spent at the user level for replacement, repair and/or calibration evolutions.

Although no attempt was made to assess projected costs associated with the suggestions and recommendations made throughout this paper, it is believed they represent viable alternatives/approaches to problems which confront IMRL managers today and have remained uncorrected for too long. Even the most casual observer must conclude from an examination of the facts that GSE budgeting and management are big business. They overlap three Congressional Appropriations Titles and involve expenditures of well over a third of a billion dollars annually. No wonder that so much emphasis has been directed recently toward better control of the assets already in the system. How much might be saved in terms of actual dollars and greater readiness is largely conjecture, but the amount is substantial.

The days when a giant cornucopia in Washington spewed out a never ending stream of money and material are gone forever, and we are all being more carefully evaluated on our managerial abilities; abilities which are expected to run the gamut of men, money, material and time. In so doing, the IMRL manager must make those decisions which promote sound management practices, but he must be innovative as well. Weighing the consequences of alternative choices and

assessing the concomitant cost-benefit relationships, it daily becomes more and more apparent that it is his job to ensure that all GSE assets are visible and properly maintained. They can not be managed in a vacuum. Only when the IMRL manager, and those who utilize this equipment, as well, have a thorough appreciation for and grasp of his management responsibilities, can maximum utilization be realized, dollar waste eliminated and a viable program effected.

APPENDIX A

IMRL TRANSACTION REPORT PROCEDURES

There are three types of IMRL change transactions:

(1) gains, (2) transfers, and (3) survey. Detailed change documentation procedures, as they apply to serialized items of GSE, are as follows:

IMRL GAIN.

a. Type Transaction. Place a check-mark in the GAIN block located in the upper right-hand corner of the form.

b. Block 1 - UIC. Enter the applicable five position IMRL activity code of the prime custodian. If the activity gaining the item is not subject to the provisions of LAMS, enter the five position UIC for the activity.

c. Block 2 - LCN. Enter the five position Local Control Number assigned to the item being gained. This block is optional.

d. Block 3 - Serial Number. Enter the last ten digits of the item serial number. This block will already be completed when the item is received from another activity on LAMS.

In the event the item is an accountable item which requires a serial number but has none due to a worn, damaged or missing name plate, serial number assignment will be made in accordance with the following note.

Items requiring serial numbers but having none, will be assigned a six-digit serial number consisting of the prime custodian organization code followed by three locally assigned numbers. The locally assigned numbers will be numbered sequentially from 001 through 999. The same serial number may be assigned to any number of end-items of support equipment as long as the part numbers of the items are not alike. The assigned serial number will be permanently affixed to the equipment and remain thereon until the item is stricken from the Navy's inventory. USN registration numbers or Plant Account numbers will not be used. Activities

which are not subject to the provisions of OPNAVINST 4790.2 (series) may assign serial numbers in a fashion deemed appropriate as long as the assigned number does not exceed ten positions and is in some way identifiable as a locally assigned serial number. (This procedure does not apply to items which do not require, and were never intended to have, serial numbers.) These items will be documented in accordance with non-serialized item procedures outlined later in this appendix.

e. Block 4 - Date. Enter the five position Julian Date on which the item is being gained.

f. Block 5 - Time. Enter the four position Military Standard Time at which the transaction is being documented. Use of the time block is optional and will not be keypunched.

g. Block 6 - IMRL Trans. Place a check-mark in the applicable square depending on whether or not an IMRL transaction is required. (All reportable items listed on the activity's IMRL require IMRL transactions.)

For activities under the LAMS program, the local program will automatically produce an IMRL Transaction Report for forwarding to the upper-level ADP center, when block 6 is marked "Yes."

h. Block 7 - Trans. Sr. No. The transaction serial number is a four digit numerical designator indicating an activities' IMRL transaction. The first character indicates the year and the second, third and fourth characters numbered sequentially from 001 to 999 indicate the IMRL transaction for that year. This block will be used only if Block 6 is checked "Yes."

i. Block 8 - Rec. From/Trans. To. Enter the five character UIC of the activity that the unit was received from. If the transferring activity is under the LAMS pre-printed TR system, this block will be transcribed from Block 1 (UIC).

j. Block 9 - Qty. The number of items on which the action is being conducted by this transaction report.

k. Block 10 - NSN/FSN. This entry is optional at the discretion of the cognizant ACC.

l. Block 11 - MOD/DESIG/Part Number. Enter the manufacturer's part number as listed in the IMRL. If the item is not listed in the IMRL, enter the part number as shown on the equipment name plate. (Note: Eliminate special characters, such as a dash or slash, except between numerics).

m. Block 12 - Nomenclature. Enter the nomenclature as listed in the IMRL. If the item is not listed in the IMRL enter the nomenclature most readily recognizable to maintenance personnel. This block is limited to 15 characters.

n. Block 13 - Manufacturer's Code. The five digit numerical manufacturing code of the end-item being reported.

o. Block 14 - Prime NIIN/FIIN. This block is not presently used.

p. Block 15 - IMRL Item. Enter the IMRL item number of the item received. This entry is optional at the discretion of the cognizant ACC.

q. Block 16 - A/A. Enter the IMRL authorized allowance for the Block 15 IMRL item. This entry is optional at the discretion of a cognizant ACC.

r. Block 17 - TOT O/H. Enter the total on-hand quantity of the Block 11 part/model number. Activities having computer generated TR cards will leave this block blank. It will automatically be computed.

s. Block 18 - CAL-PM Site. Enter the three position 3M code, three position Laboratory Code or five position UIC of the activity responsible for calibration or preventative maintenance. If the item being gained does not require calibration or preventative maintenance, leave this block blank.

t. Block 19 - Date Due. Enter the five position Julian Date on which the item is being recalled for calibration or preventative maintenance. If the item does not require calibration or preventative maintenance, leave this block blank.

u. Block 20 - W.C. Enter the three digit work center code assigned to the primary work center which controls the item being gained.

v. Block 21 - Status. Enter the two position status code which applies to the item at the time it is being gained. This block is optional at the local level.

w. Block 22 - E/C. Enter the appropriate one position Exception Code.

x. Block 34 - Authority. Enter the gain authority exactly as specified by the ACC. This entry must match exactly the transfer authority for processing by the AMMRL/Closed-Loop System. For transferring activities under LAMS, this block will have been completed. This block is optional if Block 6 is checked "No."

IMRL TRANSFER.

a. Type Transaction. Place a check-mark in the TRANS block located in the upper right-hand corner of the form.

b. Blocks 1, 3, 11, 12 and 13 will have been preprinted on the form. If a hand transcribed form is used, these blanks must be completed in accordance with the definitions for IMRL GAIN procedures listed above.

c. Block 4 - Date. Enter the five position Julian Date on which the item is being transferred.

d. Block 6 - IMRL Trans. Place a check-mark in the applicable square depending on whether or not an IMRL transaction is required. For activities under the LAMS program, when this block is marked "Yes," the local program will automatically produce an IMRL Transaction Report for forwarding to the upper-level ADP center.

e. Block 7 - Trans. Sr. No. The transaction serial number is a four-digit numerical designator indicating an activities' IMRL transaction. The first character indicates the year and the second, third and fourth characters numbered sequentially from 001 to 999 indicate the IMRL transaction for that year. This block will be used only if Block 6 is checked "Yes."

f. Block 8 - Rec. From/Trans. To. Enter the five-digit (character) UIC of the activity that the unit is being transferred to.

g. Block 9 - Qty. The number of items on which the action is being conducted by this transaction report.

h. Block 22 - E/C. Enter the appropriate one position Exception Code.

i. Block 34 - Authority. Enter the transfer authority exactly as specified by the ACC. This block is optional if Block 6 is checked "No."

IMRL SURVEY.

a. Type Transaction. Place a check-mark in the SURVEY block located in the upper right-hand corner of the form.

b. Block 1, 3, 11, 12, and 13 will have been preprinted on the form. If a hand transcribed form is used, these blocks must be completed in accordance with the definitions for inventory (IMRL) GAIN procedures listed above.

c. Block 4 - Date. Enter the five position Julian Date on which the item is being surveyed.

d. Block 6 - IMRL Trans. Place a check-mark in the applicable square depending on whether or not an IMRL transaction is required. For activities under LAMS, when this block is marked "Yes," the local program will automatically produce an IMRL Transaction Report for forwarding to the upper-level ADP center.

e. Block 7 - Trans. Sr. No. The transaction serial number is a four-digit numerical designator indicating an activities IMRL transaction. The first character indicates the year and the second, third and fourth characters numbered sequentially from 001 to 999 indicate the IMRL transaction for that year. This block will be used only if Block 6 is checked "Yes."

f. Block 9 - Qty. The number of items on which the action is being conducted by this transaction report.

g. Block 22 - E/C. Enter "9."

h. Block 34 - Authority. Enter the survey authority. This block is optional if block 6 is checked "No."

NOTE: Survey transactions via LAMS do not annul the requirements for survey requests in accordance with other Navy instructions.

i. No other blocks need to be completed even though some, such as subcustody return, might be affected.

There are two types of subcustody transactions, issues and receipts. Detailed documentation procedures for these transactions as they apply to serialized items are as follows:

ISSUE TRANSACTION.

a. Type Transaction. Place a check-mark in the RETURN block located in the upper right-hand corner of the form.

b. If a preprinted card has not been received, complete Blocks 1, 3, 11, 12 and 13 on a handscribed transaction card.

c. Block 4 - Date. Enter the five position Julian Date on which the item was returned from subcustody.

d. Block 27 - Status. Enter the applicable status code that the item is being placed into. This entry is optional at the local level.

e. Block 28 - Qty. Enter "1" for serialized items.

f. Subcustody ORG/WC. This block will be left blank for serialized items.

g. Block B - Signature. The person receiving the equipment at the prime custodian activity will sign his name and rank/rate in this block.

When changes to data elements listed in the Master File are required, or when errors are found in reports generated by the system, a correction transaction must be submitted. Corrections required on serialized items will be documented as follows:

a. Type Transaction. Place a check-mark in the CORR Block located in the upper right-hand corner of the form.

b. Under the preprinted card system, Blocks 1, 3, 11 and 13 will be filled in. If a handscribed card is used, these blocks must be filled in according to the definition given under GAIN transactions.

c. Block 4 - Date. Enter the five position Julian Date on which the correction is being made.

d. The data requiring correction will be entered in its respective block on the form. Blocks which can be corrected via these Correction Transaction procedures are as follows: 1, 2, 3, 4, 12, 18, 19, 20 and 21. Blocks 11 and 13 can be changed only through a loss/gain transaction as these blocks affect the inventory. A maximum of two data elements may be corrected with one correction transaction document. If more than two data elements require correction, additional correction transactions must be submitted.

The procedures for documentation of non-serialized items are slightly modified from those procedures outlined for serialized items. The only status codes authorized for use

on non-serialized items are A1, A2, and F1. Detailed documentation procedures for non-serialized items are as follows:
IMRL GAIN.

a. Block 3 - Serial Number. When gaining non-serialized items, this block will be left blank.

b. Block 9 - Qty. Enter the quantity of non-serialized items being gained, from "1" through "999."

c. All other documentation procedures for GAIN transactions involving non-serialized items are the same as those outlined for serialized items.

IMRL TRANSFER.

a. The documentation procedures for transfer transactions are the same as those outlined for serialized items with the following exceptions.

b. Block 3 - Serial Number. When transferring non-serialized items, this block will be left blank.

c. Block 13 - Qty. Enter the number of non-serialized items to be transferred, "1" through "999."

IMRL SURVEY.

a. The documentation procedures for survey transactions involving non-serialized items are the same as those outlined for serialized items with the following exceptions:

b. Block 3 - Serial Number. This block will be left blank when striking non-serialized items.

c. Block 13 - Qty. Enter the number of items to be struck from the inventory, "1" through "999."

There are two types of subcustody transactions, issues and receipts.

ISSUE TRANSACTION.

a. Subcustody issue transaction documentation procedures involving non-serialized items are the same as those outlined for serialized items with the following exceptions:

b. Block 3 - Serial Number. When issuing non-serialized items, this block will be left blank.

c. Block 23 - Date Due. Leave blank.

d. Block 24 - Status. Enter the status code that the items are being issued from. This block is optional at the local level.

e. Block 25 - Qty. Enter the quantity of items being issued, "1" through "999."

RETURN TRANSACTION

a. Subcustody return transaction documentation procedures involving non-serialized items are the same as those outlined for serialized items with the following exceptions:

b. Block 3 - Serial Number. When returning non-serialized items, this block will be left blank.

c. Block 27 - Status. Enter the applicable status code that the items are being placed into. This block is optional at the local level.

d. Block 28 - Qty. Enter the number of items that apply to the status code entered in Block 27.

e. Block 29 - Subcustody ORG/WC. Enter the subcustody organization code of the activity returning the item/s. This entry must be exactly the same as that appearing in Block 26 for the ISSUE transaction.

Corrections required on non-serialized items will be documented in the same manner as serialized items, with one exception: Block 9, as well as Blocks 11 and 13, can be changed only through a loss/gain transaction.

Source: Naval Air Systems Command, Operations Manual for Local Asset Management Subsystem (LAMS), 1 August 1976.

APPENDIX B

LOCAL-LEVEL IMRL PROCESS

NOTES

1. Individual Material Readiness Lists (IMRL) are received by units from the Naval Air Systems Command Representative (NASCR) when requested by the Type Commander. Revisions to the IMRL are made when required on an "as occurring" basis. Factors that affect the IMRL composition are: Weapons Systems supported, Number of Weapons Systems assigned, Maintenance Level assigned, geographic factors, physical factors, operational conditions and mission requirements. Changes to any of these factors would possibly generate the requirement for IMRL revision.

2. A previously issued IMRL contains detailed information concerning items deleted from the new IMRL and should be retained until a review of the Supplement is completed.

3. A "wall to wall" physical inventory is required annually. An inventory may be conducted any time during the calendar year but not later than 31 December. Additional inventories may be held at any time and to any depth desired.

4. Holders of IMRL items would be Work Centers and supported activities (Squadrons, Detachments, etc.).

5. Holders of IMRL items would be provided a copy of the IMRL for inventories of those items which pertain to their area of responsibility. Data elements to be reviewed are:

- IMRL Line Item Number
- Part Number
- National Stock Number (NSN) if provided
- Nomenclature
- Maintenance Level (O, I, T)
- Report Code
- Calibration Code
- Pre-positioned Code
- Computed Allowance
- Total Authorized Allowance

6. The IMRL will be annotated to reflect actual numbers of items on hand, condition of items and correction of errors or omission.

7. Holders of IMRL items should provide along with the annotated IMRL a report on the overall status of IMRL items held, request for additions and deletions and recommendations for change.

8. Discrepancies are those elements found in error which require change or correction. IMRL items held in excess of authorized allowance are reviewed to determine requirements. Deficiencies include items lost or missing, items in need of repair or survey and items that are new requirements and have not been previously ordered.

9. Only IMRL items with Report Code "C" are considered consumable. These items are those which are not considered repairable and have a value of less than \$200.00.

10. IMRL items designated Pre-Positioned Code are those items required by a Supported Activity and provided by a Supporting Activity on sub-custody basis.

11. Survey action is required when a decrease in Report Code "R" occurs in an inventory. Report Code "R" items are those items which are considered repairable regardless of value and all items valued at \$200.00 or more. Decrease of inventory occurs when items are condemned as a result of damage or deterioration, lost or stolen, and obsolete.

12. Survey is prepared utilizing Supply and Accounts Form 154. Data elements include:

- Date
- Number
- Activity
- Originator (Signature and Title)
- Request for Survey
 - Item
 - Stock Number and Description
 - Quantity
 - Unit Price
 - Total Value
 - Reason for Survey
 - Account in which carried (Appropriation Purchase Account, Navy Stock Account, Non-Stores, etc.)
 - Other Data (Source, date of receipt, etc.)
- Action by Commanding Officer or Delegate
 - Type of Survey
 - Formal
 - Informal
 - Survey to be made by
 - Signature (CO or Delegate) (Date)

Survey Report and Recommendations
Recommendations
Expenditure from Records
Transfer to B-270
Transfer to Material Condition Code
Estimated Repair Cost
Items surveyed in accordance with Navy Regulations
Signatures (3)
Review of Survey Report
Approved
Disapproved
Signature (CO or Delegate)
Date
Forward to (Bureau)
Accounting Data
Appropriation
Expendable Account
Bureau Approval
Disposed of as indicated
Signature (Rank and Title)
Date

13. Survey is submitted via Chain of Command to Type Commander, Naval Air Systems Command Representatives (PAC/LANT) and NAVAIRSYSCOM when appropriate. Final approval for Survey and Disposition Instructions for items valued over \$1,000.00 will be made by the Type Commander.

14. Transaction Reports (NARF Report Symbol 4440-5) are submitted to cognizant NASCRs and Type Commander for all IMRL Report Code "R" items received, transferred or surveyed. No Transaction Report will be accepted for items "Lost by Inventory" unless a completed survey document is referenced. Data elements of the Transaction Report are:

IMRL Identification Number
National Stock Number (NSN) (Part Number if NSN is not available)
Transaction Serial Number
Total Quantity Authorized
Julian Date
IMRL Date
IMRL Item Number
Transferred To/Received From
Authority/Reason (Document Number/Survey Number)
Ground Support Equipment Transactions
Status
Ready for Use (A)
Awaiting Survey Disposition (F) (no longer used)
Received
Transferred
On Hand
Total On Hand
Activity
Signature (include rank)

A section of the Transaction Report is provided for local use. Data elements are:

- Manufacturer's Part Number
- Equipment/Model Number
- Serial Number
- Work Center
- Building
- Activity
- Quantity
- Signature

15. Transaction Reports would be prepared in this instance for items with Report Code "R" gained by Physical Inventory, items previously reported by Part Number and now assigned a National Stock Number (NSN) and to correct previously submitted Transaction Reports. Data elements are provided by Note 14.

16. Transaction Reports are submitted by mail on an "as occurring" basis with the following distribution:

Copy 1	NASCR (P/L)
Copies 2, 4, & 5	Discretion of Area Commander
Copy 3	Type Commander
Copy 6	Retained by Reporting Activity

17. Excess items are those IMRL Report Code "R" items which exceed the authorized allowance of the IMRL. These items must be reported by "Letter of Excess." Except in cases of activity deactivation or change in assigned weapon system, no item in other than Ready For Issue condition will be declared in excess.

18. Letter of Excess is prepared to request disposition instructions for all IMRL items held in excess. Section I of the letter lists excess IMRL items and Section II NAVAIR 0035QG-016 excess. Data elements are:

- Part Number
- National Stock Number
- Nomenclature
- Quantity
- Condition Code (if applicable)

19. Letter of Excess is submitted to the Type Commander via the chain of command (Area Commander).

20. Area Commander redistributes excesses within his area of responsibility. Disposition instructions for items not required by Area Command will be provided by Type Commander.

21. Possible courses of action that could be directed by higher level are transfer to other designated activities, return to Supply or disposition by survey.

22. IMRLs are annotated in the Total On-Hand column to reflect Total On-Hand assets.

23. Data elements required for recommendation for IMRL revision are:

- Activity Name
- IMRL Identification Number
- Date of IMRL
- Page Number
- Item Number
- Type of Recommendation
 - Addition
 - Decrease
 - Report Code Change
 - Pre-Positioned (P/P) Code or Management Code (MC) "L"
 - Other (explain)
- Application
 - Aircraft Model
 - Power Plant
 - Avionics
 - Armament
 - General
 - Facilities
 - Estimated Time Completion
- National Stock Number
- Part Number
- Manufacturer's Code
- Nomenclature
- Present Allowance
- Required Allowance
- Quantity On-Hand (to include alternate items)
- Quantity of Aircraft/Power Plant/Avionics System Supported
- Reference Source: Publication, Handbook of Maintenance Instructions, etc. (Publication Date, Paragraph, Page, Figure, etc. must be included)

24. Recommendation for IMRL revision is prepared on a locally produced form utilizing data elements prescribed by Note 23.

25. Recommendations are forwarded to TYCOM via the Area Commander, and those disapproved by the Area Commander will not be forwarded unless specific reason is cited.

26. Area Commanders may approve IMRL revisions locally as follows:

Additions: When information available on the ADMRL indicates required items are now authorized and will be so reflected in subsequent IMRL issues. (TYCOM/NAVAIRSYSCOMREP (PAC/LANT) need not be notified of these actions.)

Decreases: All requested decreases. (Copy of approval must be forwarded to TYCOM and NASCR (P/L)).

Increases: All increases (except for Pre-Positioned (P/P) or Management Code (MC) "L") that do not exceed computed allowance in current IMRL. Copy of approval must be forwarded to TYCOM and NASCR (P/L). All other revisions recommended for approval must be forwarded to TYCOM for appropriate action.

27. A section of the Transaction Report is provided for local Custody Record use. Data elements are prescribed by Note 14.

28. A report of the completion of Annual Inventory will be submitted to the applicable Area Commander. The Area Commander will consolidate the results of all inventories conducted within his area of responsibility and submit a report to the TYCOM.

Source: Management Systems Development Office, Maintenance/Supply Support Data Flow Operational Flow Diagrams (OFDs) Supporting Notes, February 1976, unpublished.

APPENDIX C

GLOSSARY

A/A	Authorized Allowance
ACC	Aircraft Controlling Custodian
ADMAT	Administrative/Material
ADMRL	Application Data Material Readiness List
ADP	Automatic Data Processing
AIMD	Aircraft Intermediate Maintenance Department
AMMRL	Aircraft Maintenance Material Readiness List
APA	Appropriation Purchase Account
APML	Assistant Project Manager Logistics
ASI	Aviation Supply Inspection
ASO	Aviation Supply Office
BPN	Budget Project Number
CAL	Calibration
CALIB	Calibration
CGSE	Common Ground Support Equipment
CHNAVMAT	Chief Naval Material
CINCLANTFLT	Commander in Chief Atlantic Fleet
CINCPACFLT	Commander in Chief Pacific Fleet
CNAL	Commander Naval Air Force Atlantic (Short for COMNAVAIRLANT)
CNAP	Commander Naval Air Force Pacific (Short for COMNAVAIRPAC)
CNATRA	Commander Naval Air Training
CNAVRES	Commander Naval Aviation Reserve
COMFAIR	Commander Fleet Air
COMNAVAIRLANT	Commander Naval Air Force Atlantic
COMNAVAIRPAC	Commander Naval Air Force Pacific
CO	Commanding Officer
DESIG	Designation
DSA	Defense Supply Agency
EC	Exception Code
E&E	Examination and Evaluation
FIIN	Federal Item Identification Number
FSN	Federal Stock Number
FYDP	Five Year Defense Plan
GSA	General Supply Agency
GSE	Ground Support Equipment
I	Intermediate
ICP	Inventory Control Point
ILS	Inventory Logistics Support
IMA	Intermediate Maintenance Activity
IMRL	Individual Material Readiness List
IT	Item

LAMS	Local Asset Management Subsystem
LCN	Local Control Number
MAW	Marine Air Wing
MC	Management Code
MDCS	Maintenance Data Collection System
MOD	Model
MSO	Material Support Office
NALCOMIS	Naval Aviation Logistics Command Information System
NAMP	Naval Aviation Maintenance Program
NARF	Naval Air Rework Facility (Short for NAVAIREWORKFAC)
NAS	Naval Air Station
NASCR	Naval Air Systems Command Representative (Short for NAVAIRSYSCOMREP)
NASCRL	Naval Air Systems Command Representative Atlantic (Short for NAVAIRSYSCOMREPLANT)
NASCRP	Naval Air Systems Command Representative Pacific (Short for NAVAIRSYSCOMREPAC)
NAVAIR	Naval Air Systems Command (Short for NAVAIRSYSCOM)
NAVAIRENGCEN	Naval Air Engineering Center
NAVAIREWORKFAC	Naval Air Rework Facility
NAVAIRSYSCOM	Naval Air Systems Command
NAVAIRSYSCOMHQ	Naval Air Systems Command Headquarters
NAVAIRSYSCOMREPLANT	Naval Air Systems Command Representative Atlantic
NAVAIRSYSCOMREPAC	Naval Air Systems Command Representative Pacific
NAVAIRTESTCEN	Naval Air Test Center
NICRISP	Navy Integrated Comprehensive Repairable Induction Scheduling Program
NIIN	National Item Identification Number
NO	Number
NSA	National Supply Agency
NSF	Navy Stock Fund
NSN	National Stock Number
O	Organizational
O/H	On-Hand
OMA	Organizational Maintenance Activity
O&MN	Operations and Maintenance, Navy
OPN	Other Procurement, Navy
OPNAV	Office Chief of Naval Operations
OPTAR	Operational Target Budget Report
OSIP	Operational and Safety Improvement Program
PAMN	Procurement Aviation and Missile, Navy
PEMA	Planned Equipment Management Application
PGSE	Peculiar Ground Support Equipment
PM	Planned Maintenance

PN	Part Number
POM	Program Objectives Memorandum
P/P	Pre-positioned
QTY	Quantity
R&D	Research and Development
RDT&EN	Research, Development, Training and Education, Navy
REC	Received
SCN	Ship Construction, Navy
SEAMS	Support Equipment Asset Management System
SELS	Support Equipment Lists
SERS	Support Equipment Requirement Sheets
SR	Serial
T	Depot
TOT	Total
TPON	Tentative Program Objectives Memorandum
TR	Transaction Report
TRANS	Transaction
TYCOM	Type Commander
UIC	Unit Identification Code
USS	United States Ship
VAMOSC	Visibility and Management of Support Costs
VAST	Versatile Avionics Shop Test
WC	Work Center

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